CLAIMS:

1. A method of prophylactic or therapeutic inhibition of a toxic material or substance in a human or non-human animal patient, which comprises administration to the patient of an effective amount of a dendrimer having a plurality of terminal groups wherein at least one of said terminal groups has an anionic- or cationic-containing moiety bonded or linked thereto.

2. A method according to claim 1, wherein said compound is a dendrimer which comprises a polyvalent core covalently bonded to at least two dendritic branches, and extends through at least two generations.

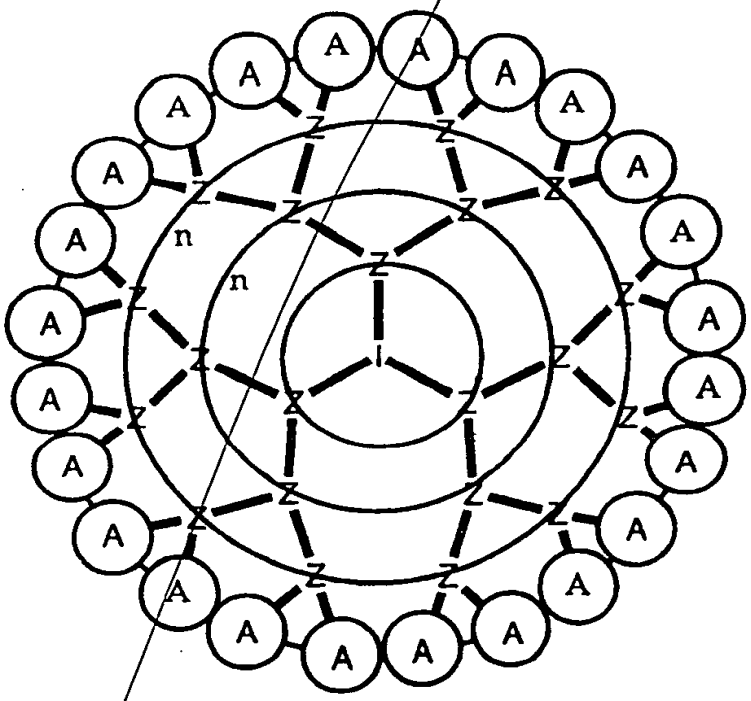
3. A method according to claim 2 wherein said dendrimer is a polyamidoamine dendrimer based on an ammonia core.

4. A method according to claim 2 wherein said dendrimer is a polyamidoamine dendrimer based on an ethylene diamine core.

5. A method according to claim 2 wherein said dendrimer is a polylysine dendrimer based on a benzhydrylamine or other suitable core.

6. A method according to claim 2 wherein said dendrimer is a poly(propyleneimine) dendrimer.

7. A method according to claim 2 wherein said compound is a polyionic dendrimer of the general formula I:



I

wherein:

I is an initiator core;

Z is an interior branching unit;

n is an integer which represents the number of generations of the dendrimer; and

A is an anionic- or cationic containing moiety which may be linked to interior branching unit Z through an optional linking group X.

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8. A method according to any of claims 1 to 7 wherein in said compound said anionic- or cationic-containing moiety or moieties are bonded to amine, sulfhydryl, hydroxy or other reactive terminal groups of the dendrimer by amide or thiourea linkages.

9. A method according to any of claims 1 to 8, wherein in said compound said anionic- or cationic-containing moieties are selected from the group consisting of sulfonic acid-containing moieties, carboxylic acid-containing moieties (including

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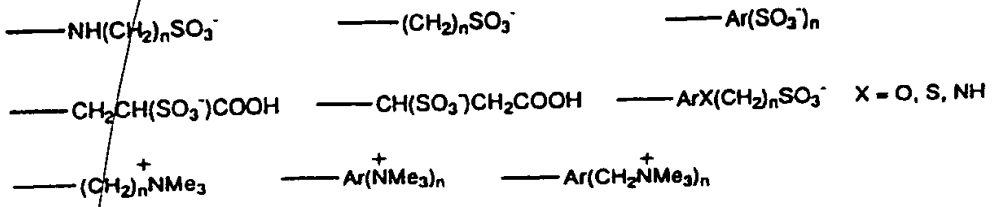
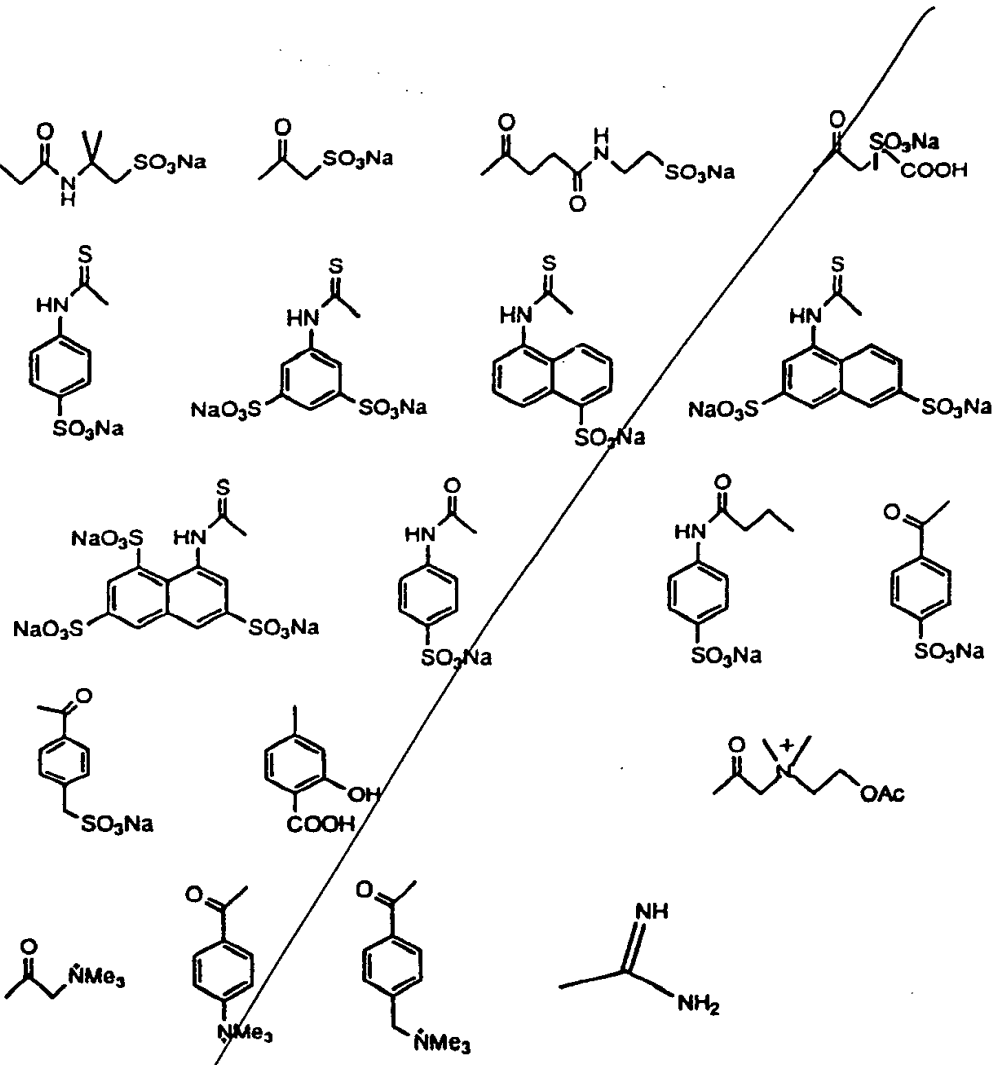
neuraminic and sialic acid-containing moieties and modified neuraminic and sialic acid-containing moieties), boronic acid-containing moieties, phosphoric and phosphonic acid-containing moieties (including esterified phosphoric and phosphonic acid-containing moieties), primary, secondary, tertiary or quaternary amino-containing moieties, pyridinium-containing moieties, guanidinium-containing moieties, amidinium-containing moieties, phenol-containing moieties, heterocycles possessing acidic or basic hydrogens, and zwitterionic-containing moieties.

10. A method according to any of claims 1 to 9 wherein in said compound the moiety or moieties which are bonded to amino or other reactive terminal groups of the dendrimer are selected from the following groups, in which n is zero or a positive integer:





——ArXP(=O)(OR)$_2$ X=O, CH_2, CHF, CF_2 R=alkyl, aryl, H, Na.

——ArXP(=O)(OR^1)(NR^{2}R^3) X=O, CH_2, CHF, CF_2 R^1=alkyl, aryl, H, Na R^2, R^3=alkyl, aryl

——Ar[P(=O)(OR)$_2$]$_n$ R=alkyl, aryl, H, Na n=1-3

——Ar[B(OH)$_2$]$_n$ n=1-3 ——Ar[COOH]$_n$ n=1-3

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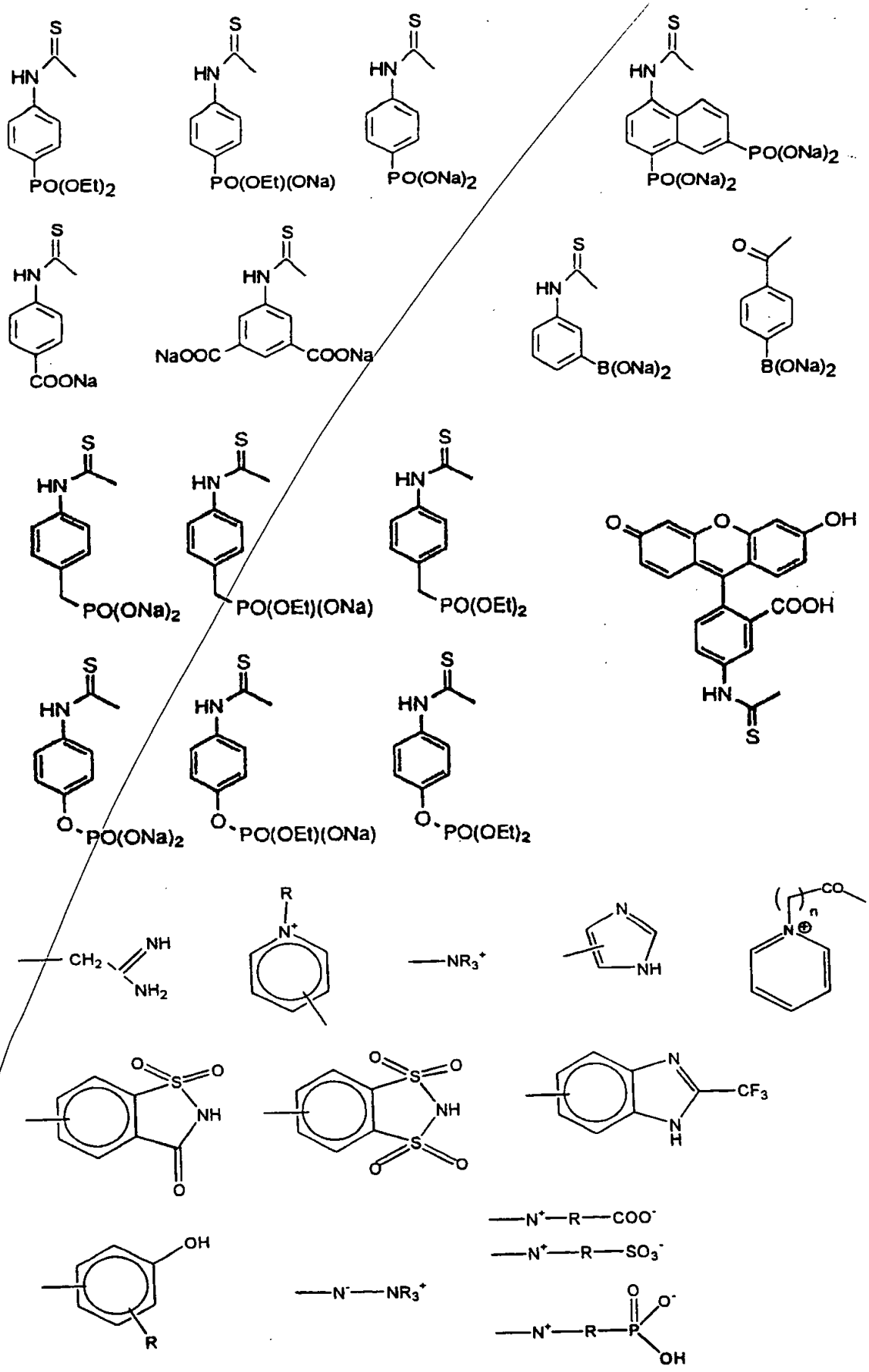
S
HN
PO(OEt)2
PO(OEt)(ONa)
PO(ONa)2
COONa
NaOOC
B(ONa)2
O
OH
COOH
CH2
NH
NH2
R
N+
NR3+
CO
n
CF3
CH
—N+—R—COO-
—N+—R—SO3-
—N-—NR3+

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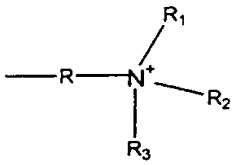
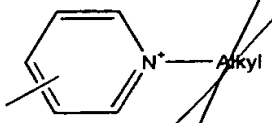


R= alkyl or arylalkyl; R_1, R_2, R_3 (which may be same or different) = alkyl or arylalkyl



11. A method according to any one of claims 1 to 10, wherein said compound is selected from the group consisting of:

1. alkylsulfonic acid terminated dendrimers;
2. sulfoacetamide terminated dendrimers;
3. sulfosuccinamic acid terminated dendrimers;
4. N-(2-sulfoethyl) succinamide terminated dendrimers;
5. 4-sulfophenylthiourea terminated dendrimers;
6. 3,6-di-sulfonaphthylthiourea terminated dendrimers;
7. 4-sulfonaphthylthiourea terminated dendrimers;
8. 3,5-di-sulfophenylthiourea terminated dendrimers;
9. 3,6,8-tri-sulfonaphthylthiourea terminated dendrimers;
10. 4-(sulfomethyl) benzamide terminated dendrimers;
11. 4-sulfobenzamide terminated dendrimers;
12. N-(4-sulfophenyl) propanamide terminated dendrimers;
13. 4-sulfophenylurea terminated dendrimers;
14. N,N,N-tri-methylglycinamide terminated dendrimers;
15. 4-trimethylammonium benzamide terminated dendrimers;
16. 4-(trimethylammoniummethyl)benzamide terminated dendrimers;
17. N-(2-acetoxyethyl)-N,N-(dimethylammonium)methyl-carboxamide terminated dendrimers;
18. guanidino terminated dendrimers;

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19. 4-([1,4,8,11-tetraazacyclotetradecane]methyl)benzamide terminated dendrimers;
20. 4-carboxy-3-hydroxy-benzylamine terminated dendrimers;
21. 4-carboxyphenylamide terminated dendrimers;
22. 3,5-dicarboxyphenylamide terminated dendrimers;
23. 4-phosphonooxyphenylthiourea terminated dendrimers;
24. 4-(phosphonomethyl)phenylthiourea terminated dendrimers;
25. ethyl-4-(phosphonomethyl)phenylthiourea terminated dendrimers;
26. (8-octanamido)-5-acetamido-3,5-dideoxy-2-thio-D-glycero-α-D-galacto-2-nonulopyranosidoic acid terminated dendrimers;
27. (11-undecanamido)-5-acetamido-3,5-dideoxy-2-thio-D-glycero-α-D-galacto-2-nonulopyranosidoic acid terminated dendrimers;
28. (acetamido)-5-acetamido-3,5-dideoxy-2-thio-D-glycero-α-D-galacto-2-nonulopyranosidoic acid terminated dendrimers;
29. (4-butanamido)-5-acetamido-3,5-dideoxy-2-thio-D-glycero-α-D-galacto-2-nonulopyranosidoic acid terminated dendrimers;
30. (4-methylbenzamido)-5-acetamido-3,5-dideoxy-2-thio-D-glycero-α-D-galacto-2-nonulopyranosidoic acid terminated dendrimers;
31. (8-octanamido)-4-azido-5-acetamido-3,4,5-trideoxy-2-thio-D-glycero-α-D-galacto-2-nonulopyranosidoic acid terminated dendrimers;
32. (8-octanamido)-4-amino-5-acetamido-3,4,5-trideoxy-2-thio-D-glycero-α-D-galacto-2-nonulopyranosidoic acid terminated dendrimers;
33. 4-benzamidoboronic acid terminated dendrimers;
34. 3,5-dicarboxyphenylthiourea terminated dendrimers;
35. 4-phosphonooxyphenylthiourea terminated dendrimers;
36. 4-phosphonophenylthiourea terminated dendrimers;

xxxvii. 4,6-diphosphononaphthylthiourea terminated dendrimers;

xxxviii. fluoresceinthiourea terminated dendrimers;

xxxix. (phenyl-3-boronic acid)-thiourea terminated dendrimers;

xl. pyridinium dodecylcarboxamide terminated dendrimers; and

xl1. saccharin terminated dendrimers.

12. A method according to any of claims 1 to 11, wherein said treatment comprises inhibition of toxins and toxic peptides of biological origin or toxins and toxic peptides released during bacterial, protozoal, fungal or viral infection.

13. A pharmaceutical or veterinary composition for prophylactic or therapeutic inhibition of a toxic material or substance in a human or non-human animal, which comprises an anionic or cationic dendrimer as defined in any of claims 1 to 11, in association with at least one pharmaceutically or veterinarily acceptable carrier or diluent.

14. Use of an anionic or cationic dendrimer as defined in any of claims 1 to 11, in, or in the manufacture of a medicament for, prophylactic or therapeutic inhibition of a toxic material or substance in a human or non-human animal.